

REMARKS

Claims 5, 14, 29, and 34 were previously canceled. Claims 1-4, 6-13, 15-28, 30-33, and 35-36 were pending in the present application. In this Reply, applicants have amended claims 1 and 17. Support for the amendments can be found in applicants' specification as filed in at least page 9, ¶ [0079], page 10, ¶ [0086], page 15, ¶ [0118], and page 61, ¶ [0422]. The amendments do not contain new matter. Claims 4, 28, and 30 are canceled without prejudice.

After entry of the amendments, claims 1-3, 6-13, 15-27, 31-33, and 35-36 remain pending in the present application. Applicants submit that these claims are allowable, as discussed below.

Summary of the Office Action

Claims 1, 7-13, 15-22, 24-27, 30-33, and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0004853, to Ram et al. (hereinafter "Ram") in view of U.S. Patent Application Publication No. 2003/0212761, to Meredith et al. (hereinafter "Meredith").

Claims 2, 3, 6 and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ram in view of Meredith and further in view of U.S. Patent Application Publication No. 2004/0221066, to Ganfield et al. (hereinafter "Ganfield").

Claims 4 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ram in view of Meredith and further in view of U.S. Patent Application Publication No. 2007/0199056, to Bhatia et al. (hereinafter "Bhatia").

Claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ram in view of Meredith and further in view of U.S. Patent Application Publication No. 2005/0144226, to Purewal et al. (hereinafter "Purewal").

Applicants traverse these rejections for the reasons below.

35 U.S.C. § 103(a)

Applicants recognized deficiencies in the then-existing technology:

Typically, front-end business applications have been integrated with back-office host and network-based applications through a complex and non-standard set of APIs, adapters, and services. This may be thought of as a *product-driven* approach, since it has multiple products interfacing with the back office, each

through its own set of integration, access, and security mechanisms. . . . Regarding the back-end, there may be multiple vendor-supported middleware solutions in place, and there may be direct coupling of applications to an individual connectivity utility. (Applicants' specification as filed, p.1, ¶ [0002] - [0004]).

Applicants' disclosed technology differs from the then-existing technology:

One goal of [applicants' disclosed technology] was to move from a product-driven model that consisted of multiple products interfacing with a back office through their own integration, access, and security mechanisms (depicted in FIG. 2) to a channel-driven model that enables multiple products to interface with a back office in a consistent and scalable manner (see FIG. 3). (Id., p.11, ¶ [0091]).

Specifically, applicants' disclosed technology "provides a mechanism to insulate applications from the many ways in which a service may be implemented, based not on who implements the services (vendor, back office, or other party) or how the services get implemented, but rather on what the requirements for the services are." (Id., p.9, ¶ [0080]). Applicants refer to this mechanism as "integration framework / IF." IF provides "an abstraction layer that protects vendors from changes to the services and the back office." (Id., p.12-13, ¶ [0098]). The IF "provides a 'screen' behind which back end business applications and data can evolve over time." (Id., p.12, ¶ [0095]).

The descriptions above and other portions from applicants' specification show the meaning of and the relationship between "front-end", "back-end", and "abstraction layer" used throughout the specification and in applicants' claims. In short, using IF, front-end applications communicate with back-end services through an abstraction layer. When back-end services evolve or change, the abstraction layer insulates the front-end applications from these changes such that there is no need to make corresponding changes in the front-end applications to keep them running.

Claims 1-3, 6-13, 15-27

In accordance with the foregoing, independent claim 1, as amended, recites:

1. A system for implementing computer network services and applications, comprising:
 - a front-end component comprising more than one software application;
 - a back-end component comprising one or more software services; and

an abstraction layer component that communicates with each of said more than one software application in said front-end component and each of said one or more software services in said back-end component, wherein:

said abstraction layer component provides standardization of back end services such that each of said more than one software application in said front-end component accesses each of said one or more software services in said back-end component by communicating through said abstraction layer component, and

said abstraction layer component provides built-in identity management that accepts a single sign on from a user and uses said single sign on to identify said user to each of said one or more software services and each of said more than one software application.

In the July 9, 2008 Office Action, independent claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ram in view of Meredith. Applicants submit that amended independent claim 1 is patentable over Ram and Meredith, as discussed below.

Amended claim 1 requires a front-end component comprising more than one software application, a back-end component comprising one or more software services, and “abstraction layer component [that] provides standardization of back end services such that each of said more than one software application in said front-end component accesses each of said one or more software services in said back-end component by communicating through said abstraction layer component.” Neither Ram nor Meredith shows or suggests this feature of amended claim 1.

Ram is deficient for several reasons. Ram is directed to a “graphical front end system for real time security trading” (See Ram, Abstract). Ram recognizes that several prior art security trading configurations exist, such as one involving a proprietary front-end with optional middleware at the back-end side (see Ram, FIG. 1) or another involving a browser-based front-end with a web server and optional middleware at the back-end side (see Ram, FIG. 2).

Applicants recognized this as well in stating in the specification that:

Typically, front-end business applications have been integrated with back-office host and network-based applications through a complex and non-standard set of APIs, adapters, and services. This may be thought of as a *product-driven* approach, since it has multiple products interfacing with the back office, each through its own set of integration, access, and security mechanisms. . . . Regarding the back-end, there may be multiple vendor-supported middleware solutions in place, and there may be direct coupling of applications to an individual connectivity utility. (Applicants’ specification as filed, p.1, ¶ [0002] - [0004]) (emphasis original).

Applicants' disclosed technology specifically moves away from the use of complex and non-standard set of integration, access, and security mechanisms. As applicants' specification explains:

One goal of [applicants' disclosed technology] was to move from a product-driven model that consisted of multiple products interfacing with a back office through their own integration, access, and security mechanisms (depicted in FIG. 2) to a channel-driven model that enables multiple products to interface with a back office in a consistent and scalable manner (see FIG. 3). (Id., p.11, ¶ [0091]).

In contrast to applicants' disclosed technology, Ram does not move away from the use of complex and non-standard set of integration, access, and security mechanisms. On the contrary, Ram embraces it – Ram's graphical front end system for real time security trading is itself one particular configuration of a complex and non-standard set of integration, access, and security mechanisms. Ram does not recognize the problem of a product-driven approach, and thus, nowhere does Ram show or suggest multiple software applications in a front-end component accessing back-end software services through a common abstraction layer component, as required in applicants' amended claim 1. As the Examiner knows, a "prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." (MPEP § 2141.02(VI)). Applicants submit that when considered in its entirety, Ram leads away from and fails to disclose applicants' amended claim 1, which requires an "abstraction layer component [that] provides standardization of back end services such that each of said more than one software application in said front-end component accesses each of said one or more software services in said back-end component by communicating through said abstraction layer component." The Examiner contended in the page 3 of the Office Action that applicants' abstraction layer component of claim 1 is shown in Ram, Fig. 4, by the Object Layer 48. Applicants respectfully submit, however, that this is a mischaracterization of Ram's Object Layer. Rather, Ram's Object Layer is part of the software application in the front-end. Ram's Object Layer is not "an abstraction layer component that communicates with each of said more than one software application in said front-end component," as required by applicant's claim 1, because Ram's Object Layer is itself a part of a software application in the front-end.

Meredith also does not show or suggest an "abstraction layer component [that] provides standardization of back end services such that each of said more than one software application in said front-end component accesses each of said one or more software services in said back-end

component by communicating through said abstraction layer component,” as required by amended claim 1. Meredith is directed to a “program . . . for representing protocol-based applications as processes” (Meredith, Abstract). In page 4 of the Office Action, the Examiner contended that applicants’ abstraction layer component of claim 1 is shown in Meredith, Fig. 3A, by the Hardware Abstraction Layer 301. Applicants respectfully disagree. Meredith, referring to Fig. 3A, describes that:

Subjacent to the operating system 342 is a hardware abstraction layer 301. The hardware abstraction layer 301 is an application programming interface for use by programmers to access devices of the hardware system 344 (such as the computing device 302, the cellular phone 334, and the desktop computer 336). The operating system kernel 303A . . . is designed to manage memory, files, and peripheral devices (via the hardware abstraction layer 301). (Meredith, p.5, ¶ [0044]).

This description in Meredith shows that Meredith’s operating system accesses hardware components via a hardware abstraction layer. This is clearly not the same as software applications in a front-end component accessing software services in a back-end component by communicating through an abstraction layer component, as required by applicants’ amended claim 1. Accordingly, applicants submit that Meredith also fails to show or suggest an “abstraction layer component [that] provides standardization of back end services such that each of said more than one software application in said front-end component accesses each of said one or more software services in said back-end component by communicating through said abstraction layer component,” as required in amended independent claim 1.

In addition to the foregoing, neither Ram nor Meredith shows or suggests applicants’ feature in amended claim 1 of an “abstraction layer component [that] provides built-in identity management that accepts a single sign on from a user and uses said single sign on to identify said user to each of said one or more software services and each of said more than one software application.”

Because both Ram and Meredith fail to show the abstraction layer component of amended independent claim 1, amended independent claim 1 is patentable over Ram and Meredith, either individually or in combination. Accordingly, applicants submit that independent claim 1 is allowable. Claims 2-3, 6-13, and 15-16 depend upon independent claim 1. The rejections of the dependent claims are traversed because “[i]f an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” (MPEP

§ 2143.03). Additionally, dependent claims 2-3, 6-13, and 15-16 are allowable for depending upon an allowable base claim.

Applicants' silence with respect to the particular rejections of dependent claims 2-3, 6-13, and 15-16 should not be construed as a concession that the features of such claims are shown in the cited references. Rather, applicants' silence is based on the belief that the foregoing adequately traverses the rejections of the dependent claims. Applicants hereby reserve the right to specifically address and traverse the rejections of the dependent claims in the future.

Claims 17-27, 31-33, and 35-36

Amended independent claim 17 recites:

17. A system for linking more than one software application in a front-end component and one or more software services in a back-end component, comprising:

- a vendor connectivity component;
- a business integration component;
- a security component, wherein said security component provides identity management that accepts a single sign on from a user and uses said single sign on to identify said user to each of said more than one software application and each of said one or more software services;
- a utility component; and
- a back end connectivity component, wherein said back end connectivity component enables each of said more than one software application in said front-end component to access each of said one or more software services in said back-end component by communicating through one standardized application program interface.

In the July 9, 2008 Office Action, independent claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ram in view of Meredith. (See Office Action, p.7-8). Applicants submit that amended independent claim 17 is patentable over Ram and Meredith, as discussed below.

Amended claim 17 requires “a back end connectivity component, wherein said back end connectivity component enables each of said more than one software application in said front-end component to access each of said one or more software services in said back-end component by communicating through one standardized application program interface.” Neither Ram nor Meredith shows or suggests this feature of amended claim 17.

Ram is deficient for several reasons. Ram is directed to a “graphical front end system for real time security trading” (See Ram, Abstract). Ram recognizes that several prior art security trading configurations exist, such as one involving a proprietary front-end with optional middleware at the back-end side (see Ram, FIG. 1) or another involving a browser-based front-end with a web server and optional middleware at the back-end side (see Ram, FIG. 2).

Applicants recognized this as well in stating in the specification that:

Typically, front-end business applications have been integrated with back-office host and network-based applications through a complex and non-standard set of APIs, adapters, and services. This may be thought of as a *product-driven* approach, since it has multiple products interfacing with the back office, each through its own set of integration, access, and security mechanisms. . . . Regarding the back-end, there may be multiple vendor-supported middleware solutions in place, and there may be direct coupling of applications to an individual connectivity utility. (Applicants’ specification as filed, p.1, ¶ [0002] - [0004]) (emphasis original).

Applicants’ disclosed technology specifically moves away from the use of complex and non-standard set of integration, access, and security mechanisms. As applicants’ specification explains:

One goal of [applicants’ disclosed technology] was to move from a product-driven model that consisted of multiple products interfacing with a back office through their own integration, access, and security mechanisms (depicted in FIG. 2) to a channel-driven model that enables multiple products to interface with a back office in a consistent and scalable manner (see FIG. 3). (Id., p.11, ¶ [0091]).

In contrast to applicants’ disclosed technology, Ram does not move away from the use of complex and non-standard set of integration, access, and security mechanisms. On the contrary, Ram embraces it – Ram’s graphical front end system for real time security trading is itself one particular configuration of a complex and non-standard set of integration, access, and security mechanisms. Ram does not recognize the problem of a product-driven approach, and thus, nowhere does Ram show or suggest multiple software applications in a front-end component accessing back-end software services through one standardized application program interface, as required in applicants’ amended claim 17. As the Examiner knows, a “prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” (MPEP § 2141.02(VI)). Applicants submit that when considered in its entirety, Ram leads away from and fails to disclose applicants’ amended claim 17, which

requires “a back end connectivity component, wherein said back end connectivity component enables each of said more than one software application in said front-end component to access each of said one or more software services in said back-end component by communicating through one standardized application program interface.”

Meredith also does not show or suggest “a back end connectivity component, wherein said back end connectivity component enables each of said more than one software application in said front-end component to access each of said one or more software services in said back-end component by communicating through one standardized application program interface,” as required by amended claim 17. Meredith is directed to a “program . . . for representing protocol-based applications as processes” (Meredith, Abstract). In page 8 of the Office Action, the Examiner contended that applicants’ back end connectivity component of claim 17 is shown in Meredith, Fig. 3A, by the Hardware Abstraction Layer 301. Applicants respectfully disagree. Meredith, referring to Fig. 3A, describes that:

Subjacent to the operating system 342 is a hardware abstraction layer 301. The hardware abstraction layer 301 is an application programming interface for use by programmers to access devices of the hardware system 344 (such as the computing device 302, the cellular phone 334, and the desktop computer 336). The operating system kernel 303A . . . is designed to manage memory, files, and peripheral devices (via the hardware abstraction layer 301). (Meredith, p.5, ¶ [0044]).

This description in Meredith shows that Meredith’s operating system accesses hardware components via a hardware abstraction layer. This is clearly not the same as software applications in a front-end component accessing software services in a back-end component by communicating through one standardized application program interface, as required by applicants’ amended claim 17. Accordingly, applicants submit that Meredith also fails to show or suggest “a back end connectivity component, wherein said back end connectivity component enables each of said more than one software application in said front-end component to access each of said one or more software services in said back-end component by communicating through one standardized application program interface,” as required in amended independent claim 17.

In addition to the foregoing, neither Ram nor Meredith shows or suggests applicants’ feature in amended claim 17 of “a security component, wherein said security component provides identity management that accepts a single sign on from a user and uses said single sign

on to identify said user to each of said more than one software application and each of said one or more software services.”

Because both Ram and Meredith fail to show the back end connectivity component or the security component of amended independent claim 17, amended independent claim 17 is patentable over Ram and Meredith, either individually or in combination. Accordingly, applicants submit that independent claim 17 is allowable. Claims 18-27, 31-33, and 35-36 depend upon independent claim 17. The rejections of the dependent claims are traversed because “[i]f an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” (MPEP § 2143.03). Additionally, dependent claims 18-27, 31-33, and 35-36 are allowable for depending upon an allowable base claim.

Applicants’ silence with respect to the particular rejections of dependent claims 18-27, 31-33, and 35-36 should not be construed as a concession that the features of such claims are shown in the cited references. Rather, applicants’ silence is based on the belief that the foregoing adequately traverses the rejections of the dependent claims. Applicants hereby reserve the right to specifically address and traverse the rejections of the dependent claims in the future.

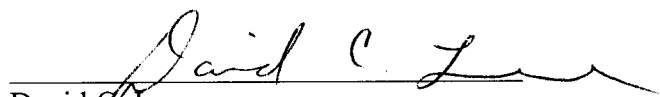
Conclusion

In view of the foregoing, applicants submit that claims 1-3, 6-13, 15-27, 31-33, and 35-36 are allowable. Accordingly, reconsideration and allowance of these claims are respectfully requested.

No fee is believed due in connection with this Reply other than the Request for Continued Examination fee and one-month extension of time fee provided in page one of this paper. If any other fee is required, please charge such fee to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310.

Dated: March 17, 2009

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "David C. Lee", is written over a horizontal line.

David C. Lee

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